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ABSTRACT

A detailed description is provided of the variable, management of grouping and instructional continuity (IE), which is part of the analysis in phase I of the Evaluation of Practices in Individualized Schooling. The variable is defined: the questionnaires on which the variable is based are listed: the procedures used to scale the variable are explained: the distribution of the variable in the 156 individually guided education (IGE) schools which participated in phase I is described: and the internal consistency of the variable is reported. (Author/MH)

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Technical Report No. 488

PROCEDURES USED IN PHASE I OF THE IGE EVALUATION TO SCALE THE VARIABLE MANAGEMENT OF GROUPING AND OF INSTRUCTIONAL CONTINUITY

by Gary G. Price, Terence C. Janicki, Judith A. Howard, Deborah M. Stewart, Anne E. Buchanan, and Thomas A. Romberg

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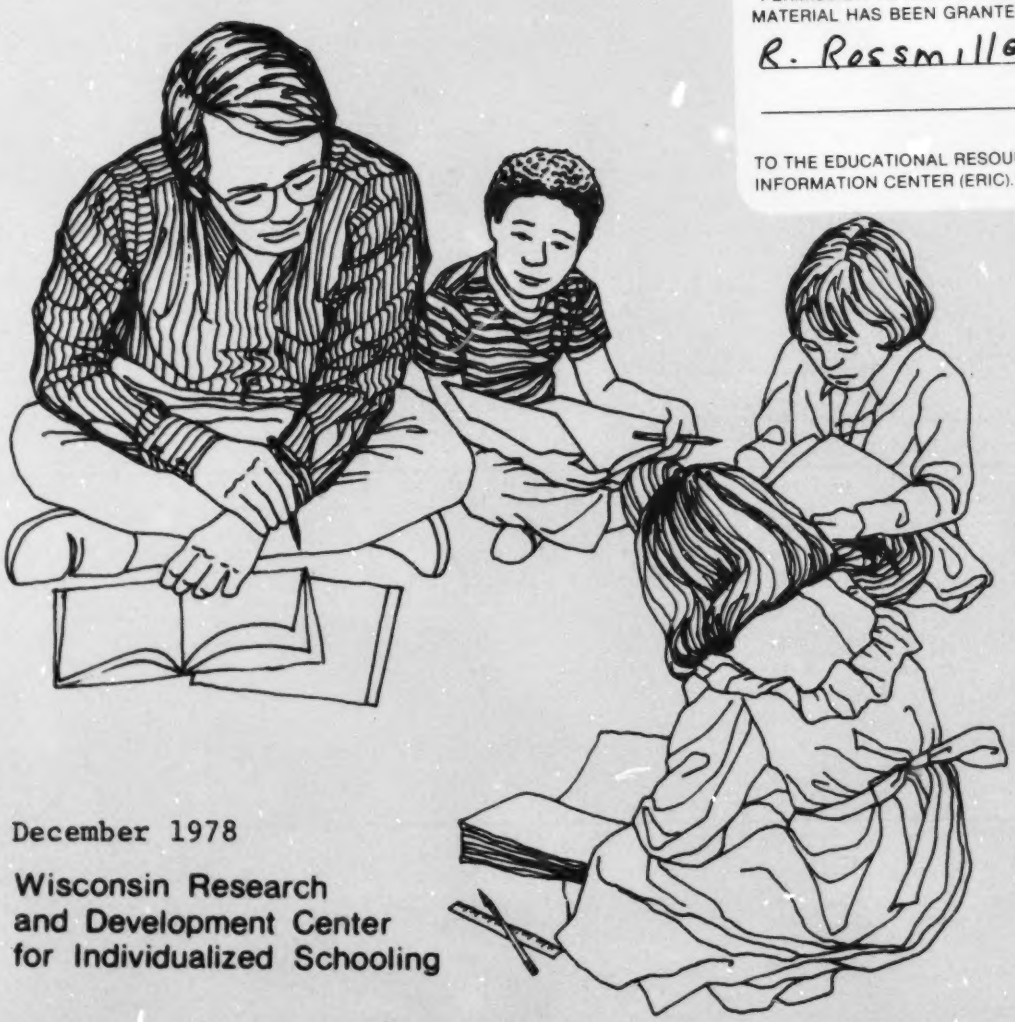

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for Individualized Schooling
The University of Wisconsin
Madison, Wisconsin

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Abstract

This report provides a specific discussion of a variable that is part of the analysis in Phase I of the Evaluation of Practices in Individualized Schooling. The name of the variable is Management of Grouping and of Instructional Continuity. Included in this discussion is a verbal definition of the variable, a list of the questionnaire items on which the variable is based, a technical explanation of the procedures used to scale the variable, a description of the distribution of the variable in the 156 schools that participated in the Phase I study, and the internal consistency of the variable. Most readers would find it useful to read Technical Report No. 475, Overview of School and Unit Variables and their Structural Relations in Phase I of the IGE Evaluation, before beginning this one.

Procedures Used in Phase I of the IGE Evaluation to Scale the Variable Management of Grouping and of Instructional Continuity

This Technical Report provides a detailed description of the variable, Management of Grouping and of Instructional Continuity. The description includes a verbal definition of the variable, a list of the questionnaire items on which the variable was based, and a technical explanation of the procedures used to scale the variable. The report also contains a description of the distribution and the internal consistency of the variable. This variable, among others, is part of the analysis in Phase I of the Evaluation of Practices in Individualized Schooling. Phase I, which is a study of 156 Individually Guided Education (IGE) schools, is the large sample part of the overall evaluation effort. Further explanation of the Phase I study and an explanation of the relationship of this variable to the Phase I analysis is given in Technical Report No. 475, Overview of School and Unit Variables and their Structural Relations in Phase I of the IGE Evaluation.

Verbal Definition of the Variable

Management of Grouping and of Instructional Continuity is a measure of several environmental facets. This variable includes organization of the instructional environment in terms of scheduling, group size, how and when groups change, and opportunities for children to become

aware of interrelationships and continuity in instruction. The abbreviated name of this measure, as used in computing statements, is IE.

Explanation of Variable-naming Conventions

This measure, like most of the variables used in Phase I of the IGE evaluation, is a composite of items taken from several different instruments. The names and identification numbers of the respective instruments are given in Table 1, along with other information. The instruments numbered 11, 17, 51, 52, and 53 were given to all staff members[1] of each school studied, and were to be filled out individually. One copy of Instruments 22, 25, and 26 was given to each of the I&R units[2] studied (two I&R units from each school, one that included second grade students and one that included fifth grade students). These instruments were filled out by the unit as a group, after they reached consensus. Instruments 23 and 24 were given to teachers of the I&R units studied and they filled them out individually. One copy of Instruments 16 and 21 was given to the IIC of each school, and was filled out by the IIC as a group. Instrument 13, a questionnaire about the entire school, was filled out by the principal of the school.

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[1] Includes all professional personnel (i.e., not aides) assigned at least one-third time to the building in both the 1976-7 and 1977-8 school years.

[2] Includes all professional personnel (i.e., not aides) assigned at least one-third time to the I&R unit in both the 1976-7 and 1977-8 school years and directly involved in planning instruction for the unit students in reading, math, or language arts.

Table 1

Instrument Identification

Test booklet	Instrument	Instrument number	File	Respondent
General staff questionnaire	IGE implementation survey	11	H	School staff members
	Staff background	17	H	School staff members
	Assumptions regarding conditions of schooling	51	H	School staff members
	Job satisfaction survey	52	H	School staff members
	Assumptions regarding learning and knowledge	53	H	School staff members
Unit staff questionnaire	I&R structure and function	22	A,B	Unit as a group
	Record keeping and regrouping	25	A,B	Unit as a group
	Instructional time and objectives	26	A,B	Unit as a group
	Role of staff teacher	23	F,G	All unit teachers
	Instructional practices	24	F,G	All unit teachers
IIC questionnaire	IIC structure and function	21	C	IIC as a group
	Demographic background	16	C	IIC as a group
IGE schools questionnaire	IGE schools questionnaire	13	C	Principal

In order to keep track of information collected from different sources, it was necessary to develop some complex conventions for naming variables. Those conventions are explained here. The abbreviated name of each item and each variable contains eight or fewer characters, in order to be readable by computer. The first character of each item and variable name is a letter that indicates the case for whom the item or variable is a measure. In this discussion, variables include information from two or more questionnaire items or transformed information from one item. Items coming from a common source (i.e., the same respondents) were collected into a common data file whose name corresponds to the first letter in the names of all items collected in it. There were six such files. Those files, described in terms of the cases to which they pertain and in terms of their respective alphabetic codes, are:

A I&R units containing 2nd grade students (the I&R unit as a case).

B I&R units containing 5th grade students (the I&R unit as a case).

C The entire school as a case.

F Individual teachers of I&R units containing 2nd grade students.

G Individual teachers of I&R units containing 5th grade students.

H Individual staff members employed by the school.

Item names. The second character in all item names is the letter "V," which distinguishes item names from names of other variables. The third and fourth characters in item names denote the number of the instrument of which the item is a part (see Table 1). The fifth, sixth, and

seventh, and in some cases, eighth characters in item names contain the identification number of the item within the instrument. For example, Item number 1 from the Staff Background Questionnaire (Instrument 17), which was given to all members of the school staff, is named as follows:

HV17001
- Item number
- Instrument number
- Identifies this as an item
- File H (includes responses of individual staff members)

Variable names. Variable names, like item names, begin with an alphabetic code that indicates the cases to which they pertain. Following that first character is an abbreviation of two to four characters used by the evaluation staff to denote the major composite of which the variable is a constituent. Subsequent characters identify the position of the variable in the scaling operation, as diagrammed in Figure 1. For example, one of the constituents of the Intraorganizational Structure composite (IOS) is named as follows:

CIOSAO2
- Second indicator of Part A (whether principal is full time)
- Part A of IOS (personnel allocation and composition of I&R units)
- Composite name (Intraorganizational Structure)
- File C (includes measures of the school as a whole)

Some of the composites are measures of the school as a whole, whereas others are specific to both the I&R unit (2nd or 5th grade) and the subject area (math or reading). Composites that pertain to the school as a whole are: Interorganizational Relations (IOR), Procedures Fostering Coordination and Improvement of the School Program (GOSB), General Staff Background (GSB), Intraorganizational Structure (IOS), Belief in Individual Differences (INDIV), View of Learning:

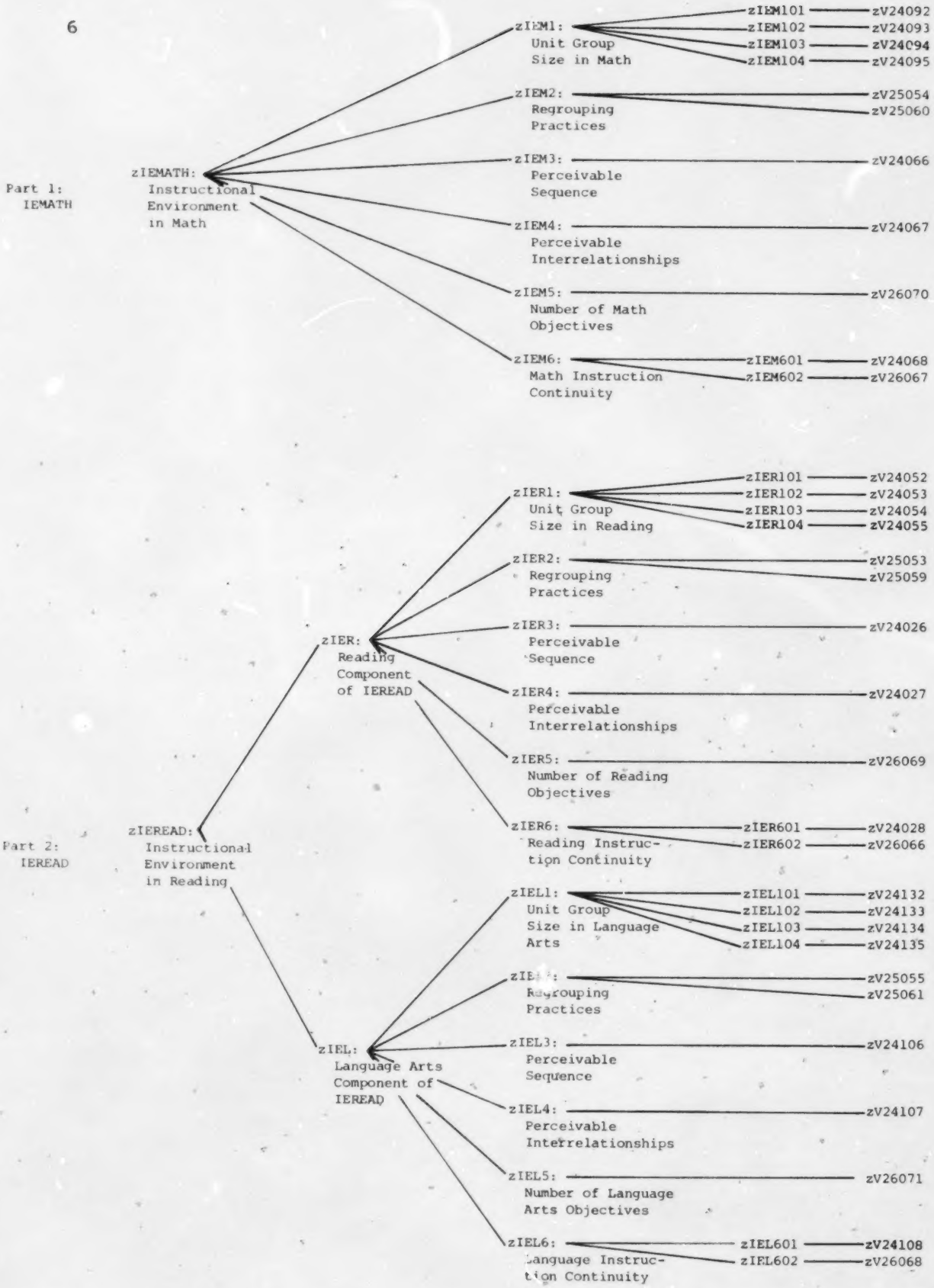
Part 1:
IEMATH
zIEMATH:
Instructional
Environment
in Math
zIEM1:
Unit Group
Size in Math
zIEM101
zIEM102
zIEM103
zIEM104
zV24092
zV24093
zV24094
zV24095
zIEM2:
Regrouping
Practices
zV25054
zV25060
zIEM3:
Perceivable
Sequence
zV24066
zIEM4:
Perceivable
Interrelationships
zV24067
zIEM5:
Number of Math
Objectives
zV26070
zIEM6:
Math Instruction
Continuity
zIEM601
zIEM602
zV24068
zV26067
Part 2:
IEREAD
zIEREAD:
Instructional
Environment
in Reading
zIER:
Reading
Component
of IEREAD
zIER1:
Unit Group
Size in Reading
zIER101
zIER102
zIER103
zIER104
zV24052
zV24053
zV24054
zV24055
zIER2:
Regrouping
Practices
zV25053
zV25059
zIER3:
Perceivable
Sequence
zV24026
zIER4:
Perceivable
Interrelationships
zV24027
zIER5:
Number of Reading
Objectives
zV26069
zIER6:
Reading Instruc-
tion Continuity
zIER601
zIER602
zV24028
zV26066
zIEL:
Language Arts
Component of
IEREAD
zIEL1:
Unit Group
Size in Language
Arts
zIEL101
zIEL102
zIEL103
zIEL104
zV24132
zV24133
zV24134
zV24135
zIEL2:
Regrouping
Practices
zV25055
zV25061
zIEL3:
Perceivable
Sequence
zV24106
zIEL4:
Perceivable
Interrelationships
zV24107
zIEL5:
Number of Language
Arts Objectives
zV26071
zIEL6:
Language Instruc-
tion Continuity
zIEL601
zIEL602
zV24108
zV26068

Figure 1. IE.

Constructivism vs. Behaviorism (CVSB), the School's Demographic Setting (DB), General Implementation of the Instructional Programming Model (GOSA), and Teacher Job Satisfaction (JOBSAT).

Composites that are specific to I&R unit and subject area are: Utilization of Curriculum Resources (UCR), Information Acquisition (IA), Individualization of Instructional Decisions (IDM), Management of Grouping and of Instructional Continuity (IE), Allocated Learning Time (ALT), and measures of student achievement. In the technical explanations of scaling, composites specific to the 2nd grade I&R unit begin with the letter "A"; composites specific to the 5th grade I&R unit begin with the letter "B." For brevity, a lower case "z" is used as the first letter wherever the explanation of scaling applies to both the 2nd and 5th grade I&R units.

Scaling Procedure

Management of Grouping and of Instructional Continuity (IE) is divided into six segments, each assessed separately within the subject areas of math and reading (a composite of reading and language arts). The six segments by subject are are portrayed in Figure 1 (see page 6); this figure does not represent numerical assignments. Appendix A contains the items used to measure IE, while Appendix B includes the Statistical Package for the Social Sciences (SPSS) commands necessary to construct IE from the data files.

Management of Grouping and of Instructional Continuity in Math (zIEMATH)

zIEMATH is a composite of six parts, as follows:

zIEM1 Unit group size in math.

zIEM2 Regrouping practices.

zIEM3 Perceivable sequence of objectives.

zIEM4 Perceivable interrelationships of objectives.

zIEM5 Number of math objectives.

zIEM6 Math instruction continuity.

Unit group size in math (zIEM1). zIEM1 is the sum of unit teacher responses to four items, zV24092, zV24093, zV24094, and zV24095. This series of items describes the percentage of time learners spend in different types of learning groups, specifically, 2 to 7 learners with one instructor, 8 to 20 learners with one instructor, 21 to 40 learners with one or more instructors, and over 40 learners with one or more instructors. The responses to the first two groups are scaled so that from 30 to 89% receives a one, and below 30% or from 90 to 100% receives a zero. The third group is scaled so that from 0 to 19% receives a one, and 20% and above receives a zero. The final group is scaled so that 0 to 9% receives a one, and from 10 to 100% receives a zero. Scaling reflects the IGE emphasis on small instructional groups. The maximum score attainable on zIEM1 is four points. The average of the unit teachers' responses within the unit is used as the unit score.

Regrouping practices (zIEM2). zIEM2 is assigned values according to the pattern of unit group responses on two items: zV25054, a measure of the typical group instructional condition; and zV25060, a

measure of what types of changes are generally associated with regrouping. At both unit levels, if a response to zV25054 is that teaching groups change composition and size, and a response to z25060 is that a new group of students has either the same or a new teacher, then this combination receives a one. All other response combinations receive a zero, reflecting the difference between most instructional group conditions and regrouping practices of the IGE model. zIEM2 thus takes on values of zero or one.

Perceivable sequence of objectives (zIEM3). zIEM3 is scored by responses of unit teachers to item zV24066, which measures the learner's perception of the sequence of math instructional objectives. At the unit five level, responses of "frequently evident" and "almost always evident" both receive a value of two. "Sometimes evident" receives a one, and "seldom evident" receives a zero. At the unit two level, "sometimes evident" also receives a value of two. The mean of unit teachers' responses per unit is the unit score; values of zIEM3 range from zero to two.

Perceivable interrelationship of objectives (zIEM4). zIEM4 is scored by the pattern of unit teacher responses to item zV24067, which measures the learner's perception of relationships between math instructional objectives. At the unit five level, responses of "frequently" and "almost always clear" both receive a value of two. "Sometimes clear" receives a one, and "seldom clear" receives a zero. At the unit two level, a response of "sometimes clear" also

receives a two. Values of zIEM4 thus range from zero to two; the mean of unit teachers' responses per unit is the unit score.

Number of math objectives (zIEM5). zIEM5 is measured by the unit response to item zV26070, which asks what is the maximum number of math instructional objectives attainable by a unit student in one school year. Any number from 20 to 149 objectives receives a one. Higher or lower numbers receive a zero, reflecting the belief that objectives have an optimal balance of specificity and generality. This dictates a range in which certain numbers of them should be attainable.

Math instruction continuity (zIEM6). zIEM6 is measured by unit teacher responses to item zV24068, which assesses the frequency of daily interruptions in math curricular activities, and by the unit group response to item zV26067, which describes the continuity of instruction in math. Item zV24068 is given a one if interruptions are infrequent, and a zero if they are frequent or almost continual. Item zV26067 is given a one if time blocks of instruction are continuous, dichotomous, or a combination of one long block with one or more short blocks. It receives a zero if instruction occurs only in short time blocks. zIEM6 is the sum of these two items, and ranges in value from zero to two.

Management of Grouping and Instructional Continuity in Math (zIEMATH)

zIEMATH is a weighted sum of the six components. zIEM1, unit group size, and zIEM2, regrouping practices, each contribute

25%, or 12 points each, to zIEM. zEIM5, number of objectives, and zIEM6, math instruction continuity, combine to contribute a total of 33.33%, or 8 points each, to zIEM. zIEM3, perceivable sequences of objectives, and zIEM4, perceivable interrelations of objectives, each contribute 4 points, or a combined total of 16.66%, to zIEM. Group composition and its stability, as an ongoing process of individualizing instruction, are considered to be central components of IE. The number of objectives and the continuity of instruction reflect to some extent the degree to which the environment is compatible with IGE practices. The learner perception components tap the interactive style of the unit.

Management of Grouping and Instructional Continuity in Reading (zIEREAD)

zIEREAD is a composite of six parts, each assessed separately within reading and within language arts, as follows:

zIER1, zIEL1 Unit group size in reading, language arts.

zIER2, zIEL2 Regrouping practices.

zIER3, zIEL3 Perceivable sequence of objectives.

zIER4, zIEL4 Perceivable interrelationship of objectives.

zIER5, zIEL5 Number of reading, language arts objectives.

zIER6, zIEL6 Instruction continuity.

Unit group size in reading, language arts (zIER1, zIEL1). zIER1 and zIEL1 are the sum of unit teacher responses to four items: zV24052, zV24053, zV24054, and zV24055 for zIER1; and zV24132, zV24133, zV24134, and zV24135 for IEL1. This series of items describe the percentage of time learners spend in different types of learning groups, specifically, 2 to 7 learners with one instructor, 8 to 20 learners

with one instructor, 21 to 40 learners with one or more instructors, and over 40 learners with one or more instructors. The responses to the first two groups are scaled so that from 30 to 89% receives a one, and below 30% or from 90 to 100% receives a zero. The third group is scaled so that from 0 to 19% receives a one, and 20% and above receives a zero. The final group is scaled so that 0 to 9% receives a one, and from 10 to 100% receives a zero. Scaling reflects the IGE emphasis on small instructional groups. The maximum score attainable on zIER1 and zIEL1 is four points. The average of the unit teachers' responses within the unit is used as the unit score for each variable.

Regrouping practices (zIER2, zIEL2). zIER2 and zIEL2 are assigned values according to the pattern of unit group responses on items zV25053 and zV25055, measures of the typical group instructional condition, and to items zV25059 and zV25061, measures of what types of changes are generally associated with regrouping. At both unit levels, if a response to zV25053 and aV25059 is that teaching groups change composition and size, and a response to zV25059 and zV25061 is that a new group of students has either the same or a new teacher, then this combination receives a one. Other response combinations receive a zero, reflecting the difference between most instructional group conditions and regrouping practices of the IGE model. zIER2 and zIEL2 thus take on values from zero to one.

Perceivable sequence of objectives (zIER3, zIEL3). zIER3 and zIEL3 are scored by responses of unit teachers to items zV24026 and

zV24106, which measure the learner's perceptions of the sequence of reading and language arts instructional objectives. At the unit five level, responses of "frequently evident" and "almost always evident" both receive a value of two. "Sometimes evident" receives a one, and "seldom evident" receives a zero. At the unit two level, "sometimes evident" also receives a value of two. The mean of unit teachers' responses per unit is the unit score; values of zIER3 and zIEL3 range from zero to two.

Perceivable interrelationships of objectives (zIER4, zIEL4). zIER4 and zIEL4 are scored by the pattern of unit teacher responses to items zV24027 and zV24107, which measure the learner's perception of relationships between reading and language arts instructional objectives. At the unit five level, responses of "frequently" and "almost always clear" both receive a value of two. "Sometimes clear" receives a one, and "seldom clear" receives a zero. At the unit two level, a response of "sometimes clear" also receives a two. Values of zIER4 and zIEL4 thus range from zero to two; the mean of unit teacher's responses per unit is the unit score.

Number of objectives (zIER5, zIEL5). zIER5 and zIEL5 are measured by the unit response to items zV26069 and zV26071, which ask what is the maximum number of instructional objectives attainable by a unit student in one school year. Any number from 20 to 149 objectives receives a one. Higher or lower numbers receive a zero, reflecting the belief that objectives have an optimal balance of specificity and

generality. This dictates a range in which certain numbers of them should be attainable.

Instruction continuity (zIER6, zIEL6). zIER6 and zIEL6 are measured by unit teacher responses to items zV24028 and zV24108, which assess the frequency of daily interruptions in reading and language arts curricular activities, and by unit group responses to items zV26066 and zV26068, which describe the continuity of instruction in reading and in language arts. Items zV24028 and zV24108 are given a one if interruptions are infrequent, and a zero if they are frequent or almost continual. Items zV26066 and zV26068 are given a one if time blocks of instruction are continuous, dichotomous, or a combination of one long block with one or more short blocks. They receive a zero if instruction occurs only in short time blocks. zIER6 and zIEL6 are the sums of these two items, and range in value from zero to two.

Reading, language, instructional environments (zIER, zIEL). zIER and zIEL are weighted sums of the six components. zIER1 and zIEL1, unit group size, and zIER2 and zIEL2, regrouping practices, each contribute 25%, or 12 points each, to zIER and zIEL. zIER5 and zIEL5, number of objectives, and zIER6 and zIEL6, instruction continuity, combine to contribute a total of 33.33%, or 8 points each, to zIER and zIEL. zIER3 and zIEL3, perceivable sequence of objectives, and zIER4 and zIEL4, perceivable interrelations of objectives, each contribute 4 points, or a combined total of 16.66%, to zIER and zIEL. Group composition and its stability, as an ongoing process of individualizing instruction, are considered to be central

components of IE. The number of objectives and the continuity of instruction reflect to some extent the degree to which the environment is compatible with IGE practices. The learner perception components tap the interactive style of the unit.

Management of grouping and of instructional continuity in reading (zIEREAD). zIEREAD is a weighted sum of zIER and zIEL, with weights varying by unit level. At the unit two level, zIER is weighted twice as heavily as zIEL, reflecting the greater importance of reading skills as opposed to other language skills at lower grade levels. At the unit five level, zIER and zIEL receive equal weight. If a school does not have language arts per se, the score for zIEREAD in both units two and five would be equal to zIER.

Distribution and Internal Consistencies of the Scaled Composites

Summary statistics for IE based on the 156 schools in the Phase I evaluation sample are provided in Table 2. Table 3 provides internal consistencies (Cronbach's α's) for IE and its constituents. Figures 2, 3, 4, and 5 are histograms of these four composites.

The relation of internal consistency to reliability in general and to validity can be difficult to understand. A composite whose constituents have high internal consistency may or may not possess high test-retest reliability. Conversely, a composite that has high test-retest reliability may have low internal consistency. Any composite that measures a homogeneous construct should rightfully be

Table 2

Summary Statistics for IE

Composite	Mean	SD	Median	Actual minimum	Logical minimum	Actual maximum	Logical maximum
AIEMATH (2nd)	29.581	7.258	30.000	14.0	0	45.750	48
AIEREAD (2nd)	28.638	6.120	28.338	13.668	0	45.00	48
BIEMATH (5th)	28.536	7.805	28.250	12.00	0	45.00	48
BIEREAD (5th)	26.339	5.907	26.000	11.00	0	42.875	48

Table 3

Internal Consistencies of the IE

Composites and their Constituents

	Variable	α
Composite:	AIEMATH	.19
Constituents:	AIEM1	.35
	AIEM2	.35
	AIEM3	--[a]
	AIEM4	--[a]
	AIEM5	--[a]
	AIEM6	.00
Composite:	AIEREAD	.58
Constituents:	AIER	.05
	AIEL	.15
Composite:	BIEMATH	.22
Constituents:	BIEM1	.35
	BIEM2	.51
	BIEM3	--[a]
	BIEM4	--[a]
	BIEM5	--[a]
	BIEM6	.00
Composite:	BIEREAD	.63
Constituents:	BIER	.08
	BIEL	.02

[a]This is a one-item constituent; therefore, the internal consistency cannot be calculated.

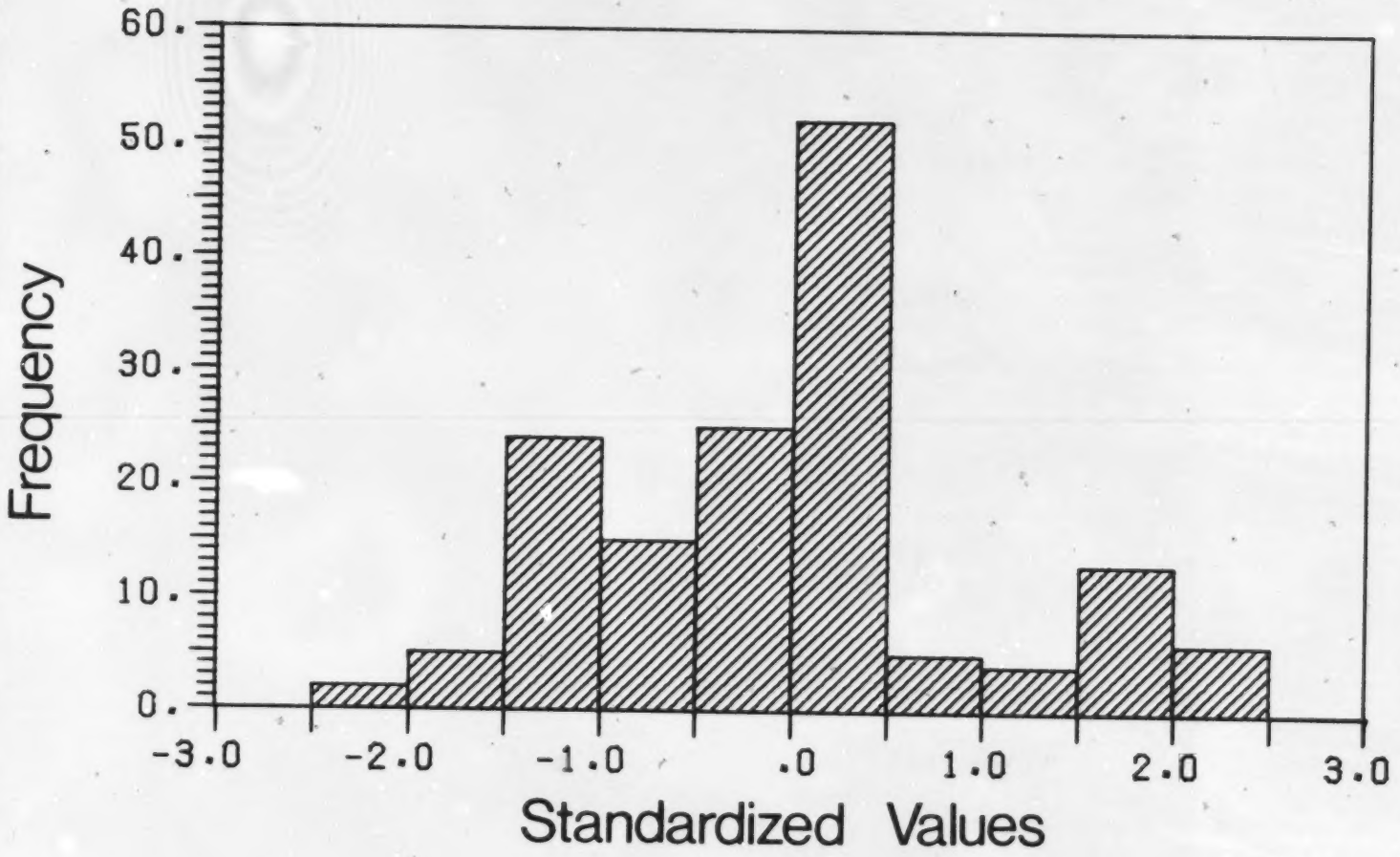

Figure 2. Management of grouping and of instructional continuity (second grade mathematics).

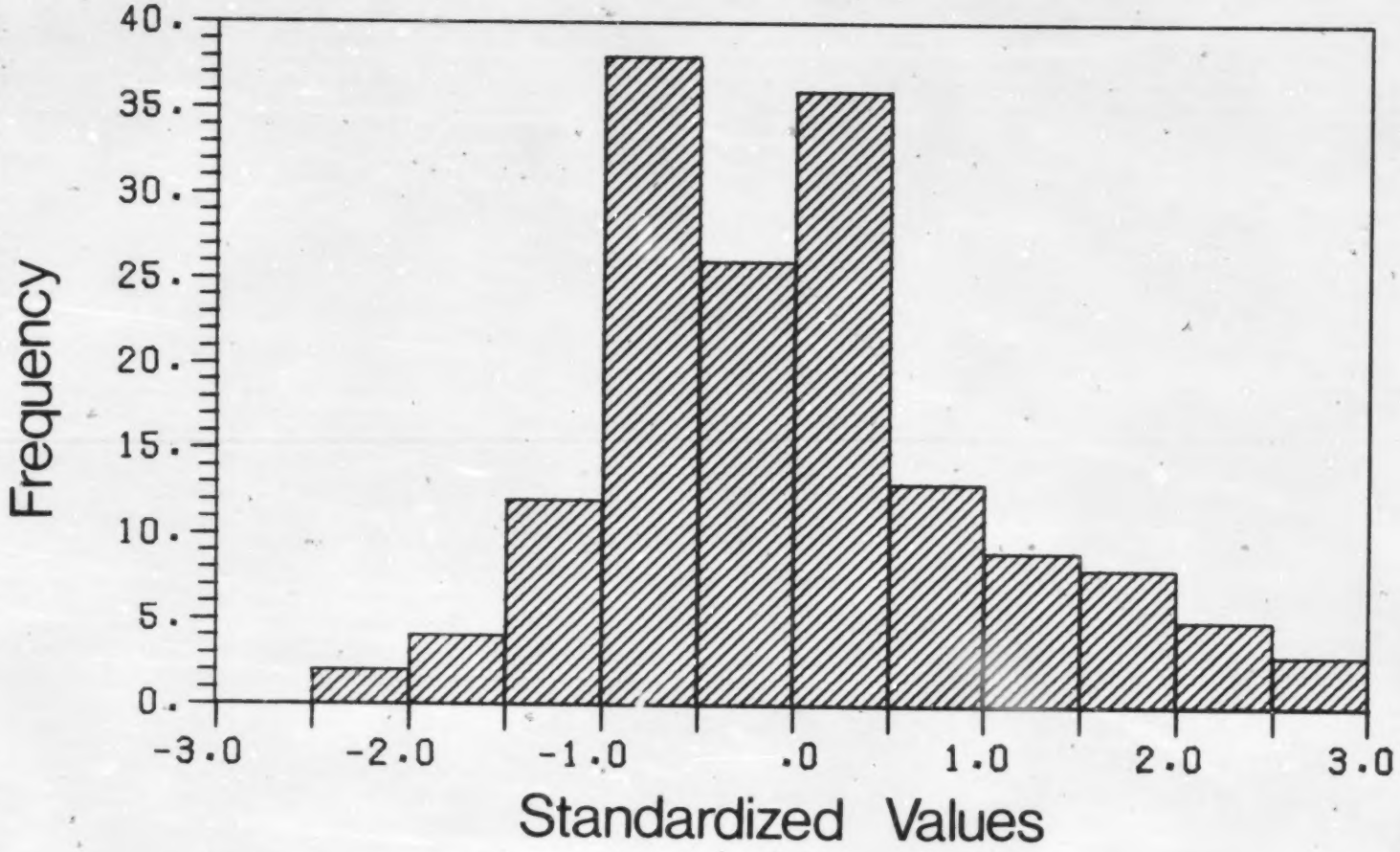

Figure 3. Management of grouping and of instructional continuity (second grade reading).

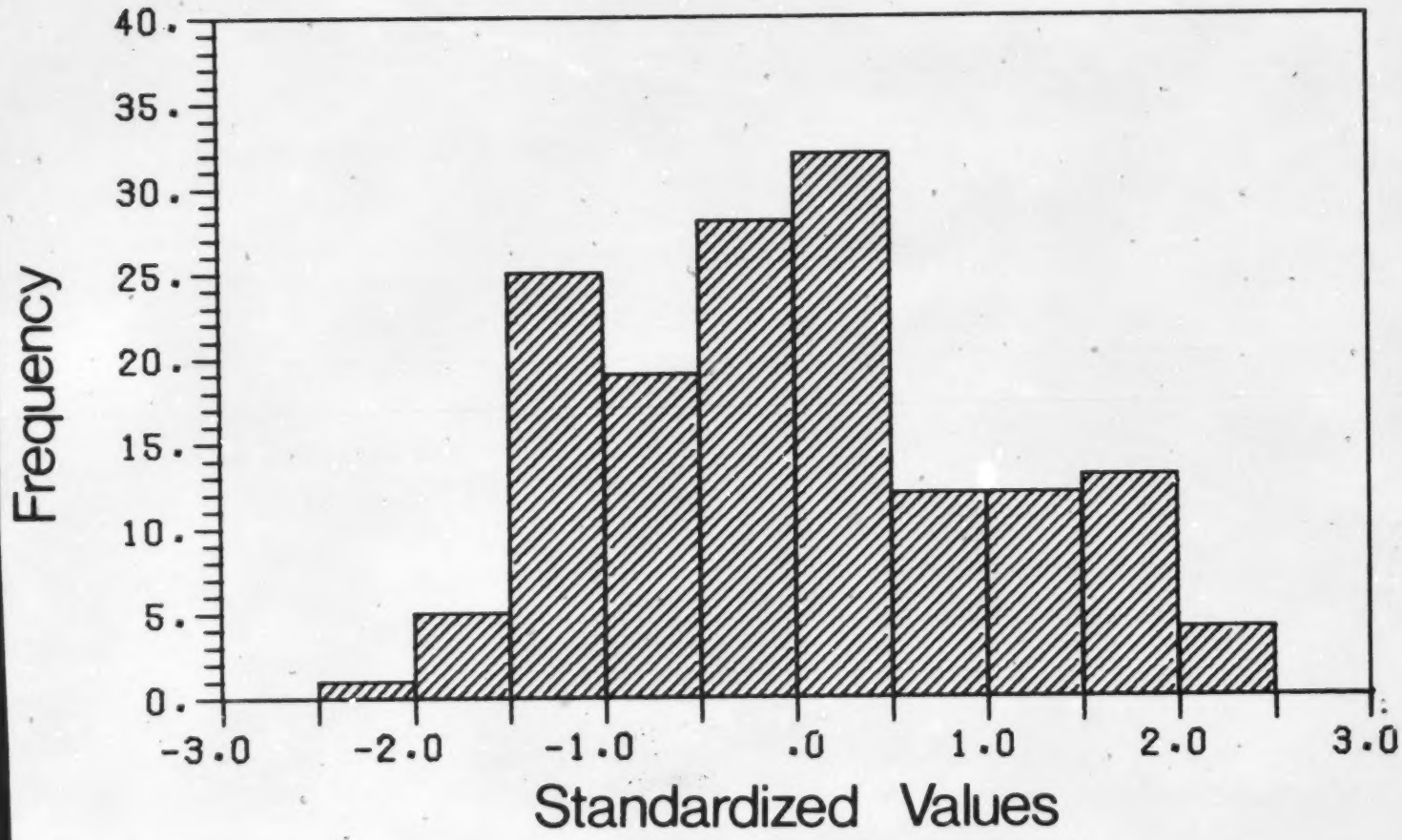

Figure 4. Management of grouping and of instructional continuity (fifth grade mathematics).

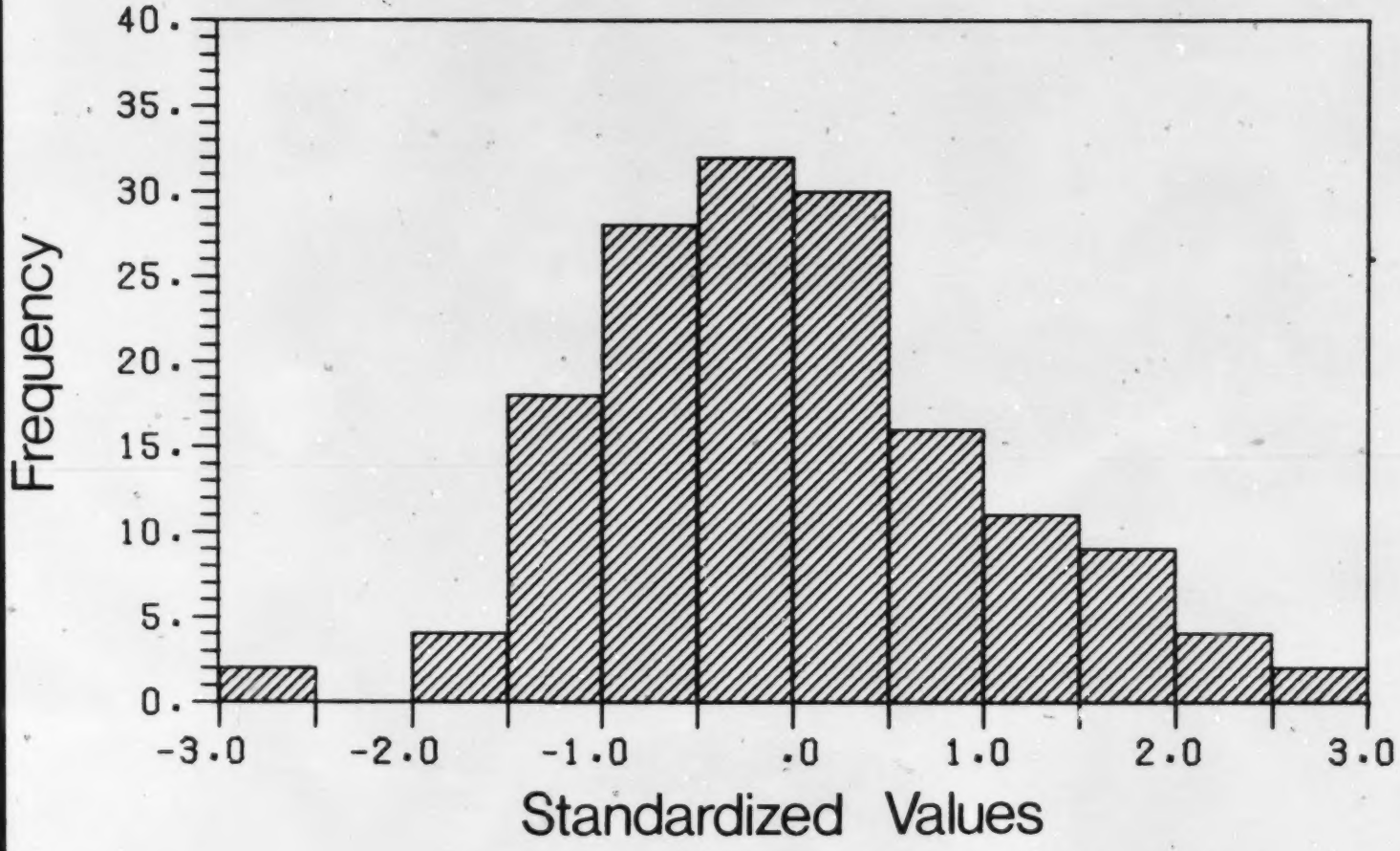

Figure 5. Management of grouping and of instructional continuity (fifth grade reading).

expected to have high internal consistency, but a composite that measures a construct which combines several facets which are empirically unrelated should not necessarily have high internal consistency, as noted by Cronbach and Meehl (1955)[3]. Several of the composites used in Phase I fit the latter description, and, accordingly, should not be expected to have high internal consistency.

---

[3] Cronbach, L. J., & Meehl, P. E. Construct validity in psychological tests. Psychological Bulletin, 1955, 52, 281-302.

Appendix A: Item Pool Selected

Files A,B: Unit as Case

zV25053
zV25054
zV25055
zV25059
zV25060
zV25061
zV26066
zV26067
zV26068
zV26069
zV26070
zV26071

Files F,G: Unit Teacher as Case

zV24026
zV24027
zV24028
zV24052
zV24053
zV24054
zV24055
zV24066
zV24067
zV24068
zV24092
zV24093
zV24094
zV24095
zV24106
zV24107
zV24108
zV24132
zV24133
zV24134
zV24135

Files A,B: Unit as Case

In teaching the following curriculum areas, which *one* of these conditions is most typical of your unit?

zV25053 53 Reading

(0) teaching a heterogeneous group of 20 to 30 students on a regular basis
(1) teaching groups of any size based on general achievement/ability levels, and teaching such groups on a regular basis
(2) supervising each child in an individualized system (working on his own), regardless of the number of students involved at any given time
(3) teaching groups of changing composition and size (including tutorial, independent study; small, medium, class-size, and large groups), based upon periodic reassessment and regrouping

zV25054 54 Mathematics — Choose (0), (1), (2), or (3) as above.

zV25055 55 Language arts — Choose (0), (1), (2), or (3) as above.

How does the group of students and teacher change when regrouping occurs? Indicate the regrouping condition *most likely* to occur in your unit after a student attains a specific instructional objective in these curriculum areas.

zV25059 59 Reading

(0) The student remains with basically the *same* group of students and has the *same* teacher
(1) The student remains with basically the *same* group of students and has a *new* teacher
(2) The student joins a *new* group of students and has the *same* teacher
(3) The student joins a *new* group of students and has a *new* teacher

zV25060 60 Mathematics — Choose (0), (1), (2), or (3) as above.

zV25061 61 Language arts — Choose (0), (1), (2), or (3) as above.

Is the total time indicated above for Grade 5 instruction in these curriculum areas scheduled in one continuous time block each day, or is it broken down into shorter, separate (interrupted by other curriculum areas) time periods?

zV26066 66 Reading

(0) One continuous time block
(1) Two separate time blocks of approximately equal length
(2) One long time block and one or more short (5-15 minutes) time blocks
(3) Several short (5-15 minutes) time blocks throughout the day

zV26067 67 Mathematics — Choose (0), (1), (2), or (3) as above.

zV26068 68 Language arts — Choose (0), (1), (2), or (3) as above.

What is the *maximum* number of specific instructional objectives an individual Grade 5 student in your unit could attain in these curriculum areas in *one school year?*

zV26069 69 Reading

(0) 0-9 objectives
(1) 10-19 objectives
(2) 20-39 objectives
(3) 40-59 objectives
(4) 60-99 objectives
(5) 100-149 objectives
(6) 150-249 objectives
(7) 250-349 objectives
(8) 350 or more objectives

zV26070 70 Mathematics — Choose (0), (1), (2)....(8) as above

zV26071 71 Language arts — Choose (0), (1), (2)....(8) as above

Files F,G: Unit Teacher as Case

zV24026
zV24066
zV24106
R26 M66 L106

From the learner's point of view, is the *sequence* of the specific instructional objectives evident in this curriculum area?

(0) Seldom evident
(1) Sometimes evident
(2) Frequently evident
(3) Almost always evident

zV24027
zV24067
zV24107
R27 M67 L107

From the learner's point of view, is the *interrelationship* of the specific instructional objectives clear for this curriculum area?

(0) Seldom clear
(1) Sometimes clear
(2) Frequently clear
(3) Almost always clear

zV24028
zV24068
zV24108
R28 M68 L108

From the learner's point of view, are activities in this curriculum area *on any one day* interrupted by work in other curriculum areas?

(0) Seldom interrupted
(1) Sometimes interrupted
(2) Frequently interrupted
(3) Almost always interrupted

About what percentage of time do learners in your unit spend in each kind of learning group below? Mark the answer sheet according to the following code; the individual percents for the seven kinds of groups should add up to 100%.

Note: In order to respond to this question accurately you will need to think of the group from the *learner's point of view;* you will also need to distinguish between a group of learners merely *seated together* and a group *interacting* with each other and/or with one or more instructors. Consider this example: 6 learners are seated at a small table. They are all working on worksheets but are not interacting as they work. There is no instructor with them. This learning group would then be described as having *one learner, no instructor* because from the learner's point of view he is working alone.

(0) 0-9%	(5) 50-59%
(1) 10-19%	(6) 60-69%
(2) 20-29%	(7) 70-79%
(3) 30-39%	(8) 80-89%
(4) 40-49%	(9) 90-100%

Use the space below to work out the percents. Then transfer to the answer sheet using the code.

	Reading	Math	Lang Arts	
	_____	_____	_____	% of time
	_____	_____	_____	% of time
zV24052, zV24092, zV24132 — R52 M92 L132 Group of 2-7 learners, one instructor	_____	_____	_____	% of time
zV24053, zV24093, zV24133 — R53 M93 L133 Group of 8-20 learners one instructor	_____	_____	_____	% of time
zV24054, zV24094, zV24134 — R54 M94 L134 Group of 21-40 learners one or more instructors	_____	_____	_____	% of time
zV24055, zV24095, zV24135 — R55 M95 L135 Over 40 learners, one or more instructors	_____	_____	_____	% of time
	100%	100%	100%	

NOTE: These variables zV24052 to zV24135 were changed into variables zX24052 to zX24135. This change took place because in many instances the set of items that were to add to 100% did not. The items were fixed so that now they add to 100%.

IEMATH (AIEMATH in Grade 2, BIEMATH in Grade 5) -- Instructional Environment in Math

IEMATH is a measure of the I&R unit's instructional environment for math. Each I&R unit will have a value on this variable, which is referred to as AIEMATH for Grade 2 units and BIEMATH for Grade 5 units. IEMATH is a weighted sum of six components, each component based on a distinct set of items. Those six components are AIEM1 to AIEM6 (for IEMATH) and BIEM1 to BIEM6 (for BIEMATH).

AIEM1, BIEM1: Group Size During Math Instruction (First of 6 IEMATH components)

This component is based on the following items:

FV24092 to FV24095 and GV24092 through GV24095, all of which relate to the question, "What percentage of time do learners in your unit spend in each kind of learning group?"

FV24092 & GV24092, group of 2-7 learners, one instructor
FV24093 & GV24093, group of 8-20 learners, one instructor
FV24094 & GV24094, group of 21-40 learners, one or more instructors
FV24095 & GV24095, over 40 learners, one or more instructors

NOTE These FV----- GV----- variables were charged into FX----- & GX-----
See Note in Appendix A.

Operations to do in file FTEACH2

```
COMPUTE         FIEM101 = FX24092
RECODE          FIEM101 (0 THRU 2.499=0) (8.500 THRU 10.5=0)
                        (2.500 THRU 8.499=1)
COMPUTE         FIEM102 = FX24093
RECODE          FIEM102 (0 THRU 2.499=0) (8.500 THRU 10.5=0)
                        (2.500 THRU 8.499=1)
COMPUTE         FIEM103 = FX24094
RECODE          FIEM103 (0 THRU 1.499=1) (1.5 THRU 10.5=0)

COMPUTE         FIEM104 = FX24095
RECODE          FIEM104 (0 THRU .499=1) (.5 THRU 10.5=0)
```

```
COMPUTE          FIEM1 = FIEM101 + FIEM102 + FIEM103 + FIEM104
VAR LABELS       FIEM1, RATING OF GR2 UNIT'S GROUP SIZE IN MATH
VALUE LABELS     FIEM1 (0) LOWEST RATING (4) HIGHEST POSSIBLE
RECODE           FIEM1 (.5 THRU 1.49=1) (1.5 THRU 2.49=2) (2.5 THRU 3.49=3)
                       (3.5 THRU HIGHEST = 4)
ASSIGN MISSING   FIEM101 TO FIEM1 (-99)
```

Operations to do in file AUNIT2

```
ADD VARIABLES    AIEM1
COMMENT          AIEM1 IS THE UNIT MEAN OF FIEM1 FROM FILE FTEACH2
VAR LABELS       AIEM1, MEAN RATING OF GR2 UNIT'S GROUP SIZE IN MATH
VALUE LABELS     AIEM1 (0) LOWEST POSSIBLE (4) HIGHEST POSSIBLE
MISSING VALUES   AIEM1 (-99)
```

Operations to do in file GTEACH5

```
COMPUTE          GIEM101 = GX24092
RECODE           GIEM101 (0 THRU 2.499=0) (8.500 THRU 10.5=0)
                 (2.500 THRU 8.499=1)
COMPUTE          GIEM102 = GX24093
RECODE           GIEM102 (0 THRU 2.499=0) (8.500 THRU 10.5=0)
                 (2.500 THRU 8.499=1)
COMPUTE          GIEM103 = GX24094
RECODE           GIEM103 (0 THRU 1.499=1) (1.5 THRU 10.5=0)

COMPUTE          GIEM104 = GX24095
RECODE           GIEM104 (0 THRU .499=1) (.5 THRU 10.5=0)

COMPUTE          GIEM1 = GIEM101 + GIEM102 + GIEM103 + GIEM104
VAR LABELS       GIEM1, RATING OF GR5 UNIT'S GROUP SIZE IN MATH
VALUE LABELS     GIEM1 (0) LOWEST RATING (1) HIGHEST RATING
RECODE           GIEM1 (.5 THRU 1.49=1)(1.5 THRU 2.49=2) (2.5 THRU 3.49=3)
                 (3.5 THRU HIGHEST=4)
ASSIGN MISSING   GIEM101 TO GIEM1 (-99)
```

Operations to do in file BUNIT5

```
ADD VARIABLES    BIEM1
COMMENT          BIEM1 IS THE UNIT MEAN OF GIEM1 FROM FILE GTEACH5
VAR LABELS       BIEM1, MEAN RATING OF GR5 UNIT'S GROUP SIZE IN MATH
VALUE LABELS     BIEM1 (0) LOWEST POSSIBLE (4) HIGHEST POSSIBLE
```

AIEM2, BIEM2: Regrouping Practices During Math Instruction (2nd of 6 Components)

This component is based on two items (2 items for the GR2 version, 2 items for the GR5 version)

AV25054 & BV25054, "What conditions are most typical of your unit grouping arrangements in math?"
AV25060 & BV25060, "What regrouping condition is most likely to occur in your unit after a student attains a specific instructional objective in math?"

Operations to do in file AUNIT2

```
COMPUTE          AIEM2 = 0
IF               ((AV25054 EQ 3) AND (AV25060 EQ 2 OR 3)) AIEM2 = 1
VAR LABELS       AIEM2, GR2 UNIT'S REGROUPING PRACTICES IN MATH
VALUE LABELS     AIEM2 (0) LOW RATING  (1) HIGH RATING
ASSIGN MISSING   AIEM2 (-99)
```

Operations to do in file BUNIT5

```
COMPUTE          BIEM2 = 0
IF               ((BV25054 EQ 3) AND (BV25060 EQ 2 OR 3)) BIEM2 = 1
VAR LABELS       BIEM2, GR5 UNIT'S REGROUPING PRACTICES IN MATH
VALUE LABELS     BIEM2 (0) LOW RATING  (1) HIGH RATING
ASSIGN MISSING   BIEM2 (-99)
```

AIEM2 and BIEM2 take values of 0 or 1, as illustrated in the table below: (Letting z = A in file AUNIT2 and z = B in file BUNIT5)

Values of zV25054 \ Values of zV25060	0	1	2	3
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	1	1

AIEM3, BIEM3: Learners' Perception of Sequence in Instructional Objectives
(3rd of 6 IEMATH components)

Operations to do in files FTEACH2 and GTEACH5
(Letting z=F in FTEACH2 and z=G in GTEACH5)

```
COMPUTE          zIEM3 = zV24066
RECODE           zIEM3 (2,3 = 2)
IF               ((zGRADE EQ 2) AND (zV24066 GE 1)) zIEM3 = 2
VAR LABELS       zIEM3, Perceivable sequence in math objectives
VALUE LABELS     zIEM3 (0) LOWEST RATING (1) MIDDLE RATING (2) HIGHEST
ASSIGN MISSING   zIEM3 (-99)
```

Operations to do in file AUNIT2

```
ADD VARIABLE     AIEM3
COMMENT          AIEM3 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 FIEM3 ON FILE FTEACH2.
VAR LABELS       AIEM3, MEAN RATING:  PERCEIVE SEQ IN GR2 MATH
VALUE LABELS     AIEM3 (0) LOWEST POSSIBLE (2) HIGHEST POSSIBLE
MISSING VALUES   AIEM3 (-99)
```

Operations to do in file BUNIT5

```
ADD VARIABLES    BIEM3
COMMENT          BIEM3 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 GIEM3 ON FILE GTEACH5.
VAR LABELS       BIEM3, MEAN RATING: PERCIVE SEQ IN GR5 MATH
VALUE LABELS     BIEM3 (0) LOWEST POSSIBLE (2) HIGHEST POSSIBLE
MISSING VALUES   BIEM (-99)
```

AIEM4, BIEM4: Learners' Perception of Interrelationships of Objectives
(4th of 6 IEMATH components)

Operations to do in files FTEACH2 and GTEACH5
(Letting z=F in FTEACH2 and z=G in GTEACH5

```
COMPUTE          zIEM4 = zV24067
RECODE           zIEM4  (2,3 = 2)
IF               ((zGRADE EQ 2) AND (zV24067 GE 1)) zIEM4 = 2
VAR LABELS       zIEM4, PERCEIVABLE INTERRELATIONSHIPS: MATH OBJ
VALUE LABELS     zIEM4 (0) LOWEST RATING (1) MIDDLE RATING (2) HIGHEST
ASSIGN MISSING   zIEM4 (-99)
```

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in AUNIT2 and z=B in BUNIT5

```
ADD VARIABLES    zIEM4
COMMENT          AIEM4 to be added to file AUNIT2 is the unit mean
                 of FIEM4 from file FTEACH2.
                 BIEM4 to be added to file BUNIT5 is the unit mean
                 of variable BIEM4 from file GTEACH5.
VAR LABELS       zIEM4, MEAN PERCEIVABLE INTERRELAT: MATH OBJ
VALUE LABELS     zIEM4 (0) LOWEST POSSIBLE  (2) HIGHEST POSSIBLE
MISSING VALUES   zIEM4 (-99)
```

AIEM5, BIEM5: Number of Instructional Objectives in Math (5th of 6 IEMATH components)

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in file AUNIT2 and z=B in file BUNIT5)

```
COMPUTE          zIEM5 = 0
IF               (zV26070 GE 2 and LE 5)  zIEM5 = 1
VAR LABELS       zIEM5, RATING: NUMBER OF MATH OBJECTIVES
VALUE LABELS     zIEM5 (0) LOWEST RATING  (1) HIGHEST RATING
ASSIGN MISSING   zIEM5 (-99)
```

AIEM6, BIEM6: Daily Continuity of Instruction in Math (6th of 6 IEMATH components)

Operations to do in files FTEACH2 and GTEACH5
(Letting z=F in file FTEACH2 and z=G in file GTEACH5)

```
COMPUTE          zIEM601 = zV24068
RECODE           zIEM601 (0,1 = 1) (2,3 = 0)
VAR LABELS       zIEM601, NONINTERRUPTION OF MATH ACTIVITIES
VALUE LABELS     zIEM601 (0) BAD: OFTEN INTERRUPT (1) GOOD:RARE INTERRUPT
ASSIGN MISSING   zIEM601 (-99)
```

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in file AUNIT2 and z=B in file BUNIT5)

```
ADD VARIABLES    zIEM601
COMMENT          Variable AIEM601 to be added to file AUNIT2 is
                 the unit mean of variable FIEM601 from file FTEACH2.
                 Variable BIEM601 to be added to file BUNIT5 is
                 the unit mean of variable GIEM601 from file GTEACH5.
VAR LABELS       zIEM601, MEAN RATING: MATH NONINTERRUPTION
VALUE LABELS     zIEM601 (0) LOWEST POSSIBLE  (1) HIGHEST POSSIBLE
MISSING VALUES   zIEM601 (-99)

COMPUTE          zIEM602 = zV26067
RECODE           zIEM602 (0,1,2 = 1) (3 = 0)
VAR LABELS       zIEM602, SEGMENTATION-CONTINUITY OF MATH A.L.T.
VALUE LABELS     zIEM602 (0) BAD: SEGMENTED (2) SOME LONG TIME BLOCK
ASSIGN MISSING   zIEM602 (-99)

COMPUTE          zIEM6 = zIEM601 + zIEM602
VAR LABELS       zIEM6, CONTINUITY OF MATH INSTRUCT--2 ITEMS
VALUE LABELS     zIEM6 (0) LOWEST POSSIBLE (2) HIGHEST POSSIBLE
ASSIGN MISSING   zIEM6 (-99)
```

AIEMATH, BIEMATH: Overall Measure of Instructional Environment in Math

The 6 components created by the foregoing series of operations should be combined to form the overall measure of Instructional Environment in Math (AIEMATH in grade 2 units, BIEMATH in grade 5 units).

AIEMATH and BIEMATH each have a maximum possible value of 48. The table below shows the contribution of AIEM1 through AIEM6 to AIEMATH, which corresponds to the contribution of BIEM1 through BIEM6 to BIEMATH.

COMPONENT	MAXIMUM VALUE POSSIBLE	WEIGHT USED IN SUM	MAXIMUM POINTS CONTRIBUTED TO IEMATH	PERCENTAGE CONTRIBUTED TO SCORE ON IEMATH
AIEM1	4	3	12	25.00
AIEM2	1	12	12	25.00
AIEM3	2	2	4	8.33
AIEM4	2	2	4	8.33
AIEM5	1	8	8	16.67
AIEM6	2	4	8	16.67

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in file AUNIT2 and z=B in file BUNIT5)

```
COMPUTE          zIEMATH = 3*zIEM1 + 12*zIEM2 + 2*zIEM3 +
                           2*zIEM4 +  8*zIEM5 + 4*zIEM6
VAR LABELS       zIEMATH, COMPOSITE: INSTRUCTIONAL ENVIR FOR MATH
VALUE LABELS     zIEMATH (0) MINIMUM POSSIBLE (48) MAXIMUM POSSIBLE
ASSIGN MISSING   zIEMATH (-99)
```

Instructional Environment Reading

zIEREAD is a measure of each I&R unit's instructional environment in reading. zIEREAD is a combination of items addressing the reading environment (zIER and items addressing language arts (zIEL). Both zIER and zIEL are composed of values of six subsets of items, several of which are measured at the unit level, the rest at the individual unit staff member level.

zIER1, zIEL1: Measure of Group Size in READING and LANGUAGE ARTS

Operations to do in files FTEACH2 and GTEACH5
Letting z=F in FTEACH2 and z=G in GTEACH5

```
COMPUTE          zIER101 = zX24052
COMPUTE          zIER102 = zX24053
RECODE           zIER101, zIER102 (0 THRU 2.499=0) (8.5 THRU 10.5=0)
                                  (2.500 THRU 8.499=1)
COMPUTE          zIER103 = zX24054
RECODE           zIER103 (0 THRU 1.499=1) (1.5 THRU 10.5=0)
COMPUTE          zIER104 = zX24055 (0 THRU .499=1) (.5 THRU 10.5=0)
RECODE           zIER104
COMPUTE          zIER1 = zIER101 + zIER102 + zIER103 + zIER104
RECODE           zIER1 (.5 THRU 1.49=1) (1.5 THRU 2.49=2)
                       (2.5 THRU 3.49=3) (3.5 THRU HIGHEST = 4)

ASSIGN MISSING   zIER1, zIER101 to zIER104 (-99)
VAR LABELS       zIER1, MEASURE OF GROUP SIZE READING/
VALUE LABELS     zIER1 (0) LOWEST RATING (4) HIGHEST RATING

COMPUTE          zIEL101 = xX24132
RECODE           zIEL101 (0 THRU 2.499=0) (8.5 THRU 10.5=0)
                         (2.500 THRU 8.499=2)

COMPUTE          zIEL102 = zX24133
RECODE           zIEL102 (0 THRU 2.499=0) (8.5 THRU 10.5=0)
                         (2.500 THRU 8.499=2)

COMPUTE          zIEL103 = zX24134
RECODE           zIEL103 (0 THRU 1.499=1) (1.5 THRU 10.5 = 0)

COMPUTE          zIEL104 = zX24135
RECODE           zIEL104 (0 THRU .499 =1) (.5 THRU 10.5=0)
```

```
COMPUTE          zIEL1 = zIEL101 + zIEL102 + zIEL103 + zIEL104
RECODE           zIEL1 (.5 THRU 1.49=1) (1.5 THRU 2.49=2)
                       (2.5 THRU 3.49=3) (3.5 THRU HIGHEST=4)

ASSIGN MISSING   zIEL1, zIEL101 to zIEL104 (-99)
VAR LABELS       zIEL1, MEASURE OF GROUP SIZE LANGUAGE ARTS/
VALUE LABELS     zIEL1 (0) LOWEST RATING (4) HIGHEST RATING
```

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in AUNIT2 and z=B in BUNIT5)

```
ADD VARIABLES    zIER1, zIEL1
COMMENT          AIER1 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 FIER1 ON FILE FTEACH2.
                 BIER1 IS MEAN OF UNIT TEACHERS ON VARIABLE
                 GIER1 ON FILE GTEACH5.
                 AIEL1 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 FIEL1 ON FILE FTEACH2.
                 BIEL1 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 GIEL1 ON FILE GTEACH5.
VAR LABELS       zIER1, MEAN RATING:  MEASURE OF GROUP SIZE READING/
                 zIEL1, MEAN RATING:  MEASURE OF GROUP SIZE LANG ARTS/
VALUE LABELS     zIERL, zIEL1 (0) LOWEST POSSIBLE (4) HIGHEST POSSIBLE
MISSING VALUES   zIER1, zIEL1 (-99)
```

zIER2, zIEL2: Measure of Regrouping Practices

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in AUNIT2 and z=B in BUNIT5)

```
COMPUTE          zIER2 = 0
IF               ((zV25053 EQ 3) AND (zV25059 EQ 2 or 3)) zIER2 = 1

COMPUTE          zIEL2 = 0
IF               ((zV25055 EQ 3) AND (zV25061 EQ 2 or 3)) zIEL2 = 1

ASSIGN MISSING zIER2, zIEL2 (-99)
VAR LABELS       zIER2, REGROUPING PRACTICES READING/
                 zIEL2, REGROUPING PRACTICES LANGUAGE ARTS/
VALUE LABELS     zIER2, zIEL2 (0) LOWEST POSSIBLE  (1) HIGHEST POSSIBLE
```

zIER3, zIEL3: Perception of Objective Sequence

Operations to do in files FTEACH2 and GTEACH5
(Letting z=F in FTEACH2 and z=G in GTEACH5)

```
COMPUTE          zIER3 = zV24026
COMPUTE          zIEL3 = zV24106
RECODE           zIER3, zIEL3 (2,3 = 2)
IF               ((zGRADE EQ 2) AND (zV24026 GE 1) zIER3 = 2
IF               ((zGRADE EQ 2) AND (zV24106 GE 1) zIEL3 = 2
ASSIGN MISSING   zIER3, zIEL3 (-99)
VAR LABELS       zIER3, PERCEPTION OF OBJECTIVE SEQUENCE READING/
                 zIEL3, PERCEPTION OF OBJECTIVE SEQUENCE LANG ARTS/
VALUE LABELS     zIER3, zIEL3 (0) LOWEST  (2) HIGHEST
```

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in AUNIT2 and z=B in BUNIT5)

```
ADD VARIABLES    zIER3, zIEL3
COMMENT          AIER3 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 FIER3 OF FILE FTEACH2.
                 BIER3 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 GIER3 ON FILE GTEACH5.
                 AIEL3 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 FIEL3 ON FILE FTEACH2.
                 BIEL3 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                 GIEL3 ON FILE GTEACH5.
VAR LABELS       zIER3, MEAN RATING: PERCEPTION OF OBJ SEQ R/
                 zIEL3, MEAN RATING: PERCEPTION OF OBJ SEQ LA/

VALUE LABELS     zIER3, zIEL3 (0) LOWEST (2) HIGHEST
MISSING VALUES   zIER3  zIEL3 (-99)
```

zIER4, zIEL4: Perception of Interrelationship of Objectives

Operations to do in files FTEACH2 and GTEACH5
(Letting z=F in FTEACH2 and z=G in GTEACH5)

```
COMPUTE         zIER4 = zV24027
COMPUTE         zIEL4 = zV24107
RECODE          zIER4, zIEL4 (2,3 = 2)
IF              ((zGRADE EQ 2) AND (zV24027 GE 1)) zIER4 = 2
IF              ((zGRADE EQ 2) AND (zV24107 GE 1)) zIEL4 = 2
ASSIGN MISSING  zIER4, zIEL4 (-99)
VAR LABELS      zIER4, PERCEPTION OF INTERRELATIONSHIP OF
                OBJ R/
                zIEL4, PERCEPTION OF INTERRELATIONSHIP OF
                OBJ LA/
VALUE LABELS    zIER4, zIEL4 (0) LOWEST  (2) HIGHEST
```

Operations to do in files AUNIT2 and BUNIT5
(Letting z=A in AUNIT2 and z=B in BUNIT5)

```
ADD VARIABLES   zIER4  zIEL4
COMMENT         AIER4 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                FIER4 ON FILE FTEACH2
                BIER4 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                GIER4 ON FILE GTEACH5
                AIEL4 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                FIEL4 ON FILE FTEACH2
                BIEL4 IS THE MEAN OF UNIT TEACHERS ON VARIABLE
                GIEL4 ON FILE GTEACH5
VAR LABELS      zIER4, MEAN: PERCEPTION OF INTER OF OBJ R/
                zIEL4, MEAN: PERCEPTION OF INTER OF OBJ LA/
VALUE LABELS    zIER4, zIEL4 (0) LOWEST (2) HIGHEST
MISSING VALUES  zIER4, zIEL4 (-99)
```

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